DERWENT-ACC-NO: 2002-342739

DERWENT-WEEK: 200247

TITLE: High performance concrete for production of prefabricated tiles and boards contains cement, pozzuolanic reaction particles, cement additives, water and a dispersing agent

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PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
FR 2813074 A1	February 22, 2002	FR
WO 0216281 A1	February 28, 2002	FR
AU 200184150 A	March 4, 2002	EN

DESIGNATED-STATES: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PH PL PT RO RU SD SE SG S I SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO	APPL-DATE
FR 2813074A1	N/A	2000FR-010770	August 21, 2000
AU 200184150A	N/A	2001AU-084150	August 21, 2001
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INT-CL-CURRENT:

TYPE	IPC DATE
CIPS	C04 B 20/00 20060101

CIPS C04 B 28/02 20060101
CIPS C04 B 7/52 20060101

ABSTRACTED-PUB-NO: FR 2813074 A1

BASIC-ABSTRACT:

NOVELTY - Concrete composition comprises (a) cement particles, (b) ultrafine pozzuolanic reaction elements, (c) granular elements, (d) cement additives, (e) water, and (f) a dispersing agent. Components (a)-(d) have specified particle size and are contained in specified relative amounts.

DESCRIPTION - The cement particles (a) have size D50 of 10-20 microns, preferably around 15 microns. The pozzuolanic reaction elements (b) are single particles of size at most 1 micron, preferably of size D75 of 0.5 microns. The granular elements (c) have particle size D75 of at most 2 mm, preferably at most 1 mm, most preferably 400 microns. The cement additives (d) have a particle size D50 of at most 10 microns.

The volumetric amounts of components (a)-(d) satisfy the following relationships: (1) ((a)+(b)+(c)+(d)) = 0.50-1.10, preferably 0.60-1.00; (2) ((b)+(d))/(a) = 0.40-0.80, preferably 0.42-0.76; (3) (b)/(a) = 0.10-0.30, preferably 0.10-0.28.

An INDEPENDENT CLAIM is given for prefabricated elements such as tiles, boards and similar articles made from the above concrete composition.

USE - Production of prefabricated high performance concrete articles such as tiles or boards.

ADVANTAGE - Improved performance in terms of workability, bending strength and compressive strength.

EQUIVALENT-ABSTRACTS:

CERAMICS AND GLASS

Preferred Concrete Composition: The concrete composition also includes an anisotropic reinforcement element, and a setting and hardening accelerator based on calcium chloride.

Preferred Cement: The cement is preferably a high silica cement containing at least 20 weight % of silica with respect to the weight of cement.

Preferred Pozzuolanic Reaction Elements: The pozzuolanic reaction elements are preferably silica fumes.

Preferred Granular Elements: The granular elements are selected from sifted or milled sands.

Preferred Cement Additives: The cement additives are selected from fly ash and/or calcareous fillers and/or slags and/or silica sands, in particular quartz flour or finely milled limestone.

Preferred Anisotropic Reinforcement Element: The reinforcement element can be an acicular reinforcement element selected from fibers of wollastonite (preferred), bauxite, mullite, potassium titanate, silicon carbide, cellulose or its derivatives, carbon, calcium phosphate, (alkali-resistant) glass or products obtained by milling the fibers, and mixtures of the fibers. The reinforcement element can also be a plate-like element selected from mica, talc, mixed silicates (clay), vermiculite and alumina.

Preferred Properties: The concrete has a bending strength of 15-25 MPa, preferably 20-25 MPa, after 28 days.

Preferred Process: After the cement has matured it is aged at 20-90 degrees C and relative humidity greater than 90%.

POLYMERS

Preferred Acicular Reinforcement Element: The reinforcement element can be selected from short fibers (at most 2 mm, preferably at most 1 mm, in length) of polyvinyl alcohol, polyacrylonitrile, high-density polyethylene, aramid polyamide or polypropylene.

Preferred Dispersing Agent: The dispersing agent comprises a super-plasticizer in amount 2-5 weight % with respect to the weight of the cement. The super-plasticizer can be, e.g., polyoxyethylenated phosphonates, polyox polycarboxylates, and their mixtures.

METALLURGY

Preferred Reinforcement Element: The reinforcement element can be steel wool.

TITLE-TERMS: HIGH PERFORMANCE CONCRETE PRODUCE PREFABRICATED TILE BOARD CONTAIN CEMENT POZZOLANA REACT PARTICLE ADDITIVE WATER DISPERSE AGENT

DERWENT-CLASS: A14 A17 A23 A25 A93 L02 Q44

CPI-CODES: A12-R01A; L02-D04B; L02-D05; L02-D06; L02-D14E;

ENHANCED-POLYMER-INDEXING: Polymer Index [1.1] 018 ; P8004 P0975 P0964 D01 D10 D11 D50 D82 F34; P0055; M9999 M2153*R; M9999 M2186; M9999 M2460;

Polymer Index [1.2] 018 ; ND01; Q9999 Q7001 Q6995; K9892; Q9999 Q6826*R; Q9999 Q7249; B9999 B3623 B3554; B9999 B4148 B4091 B3838 B3747; B9999 B4126 B4091 B3838 B3747; K9381;

Polymer Index [1.3] 018 ; Q9999 Q9110;

Polymer Index [1.4] 018 ; P* 5A; H0157;

Polymer Index [2.1] 018 ; M9999 M2062; P0975*R P0964 F34 D01 D10; P0839*R F41 D01 D63; H0260;

Polymer Index [2.2] 018 ; ND01; Q9999 Q7001 Q6995; K9892; Q9999 Q6826*R; Q9999 Q7249; B9999 B3623 B3554; B9999 B4148 B4091 B3838 B3747; B9999 B4126 B4091 B3838 B3747; K9381;

Polymer Index [2.3] 018 ; Q9999 Q9110;

Polymer Index [3.1] 018 ; P1707 P1694 D01; S9999 S1092 S1070;

Polymer Index [3.2] 018 ; G0475 G0260 G0022 D01 D12 D10 D26 D51 D53 D58 D83 F12 R00817 395; H0000; S9999 S1092 S1070; P0088; P0102;

Polymer Index [3.3] 018 ; G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D82 R00326 1013; H0000; P1194 P1161; S9999 S1092 S1070; P1150;

Polymer Index [3.4] 018 ; P0737*R P0635 H0293 F70 D01 D18; S9999 S1092 S1070;

Polymer Index [3.5] 018 ; G0044 G0033 G0022 D01 D02 D12 D10 D51 D53 D58 D83 R00964 1145; H0000; S9999 S1092 S1070; P1150; P1343;

Polymer Index [3.6] 018 ; G3634*R D01 D03 D11 D10 D23 D22 D31 D42 D76 F24 F34 H0293 P0599 G3623; G3634 D01 D03 D11 D10 D23 D22 D31 D42 D50 D76 D86 F24 F29 F26 F34 H0293 P0599 G3623 R01852 90356; S9999 S1070*R;

Polymer Index [3.7] 018 ; ND01; Q9999 Q7001 Q6995;

K9892; Q9999 Q6826*R; Q9999 Q7249; B9999 B3623 B3554; B9999 B4148 B4091 B3838 B3747; B9999 B4126 B4091 B3838 B3747; K9381;

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